

Quiz 3: Intertemporal Choice

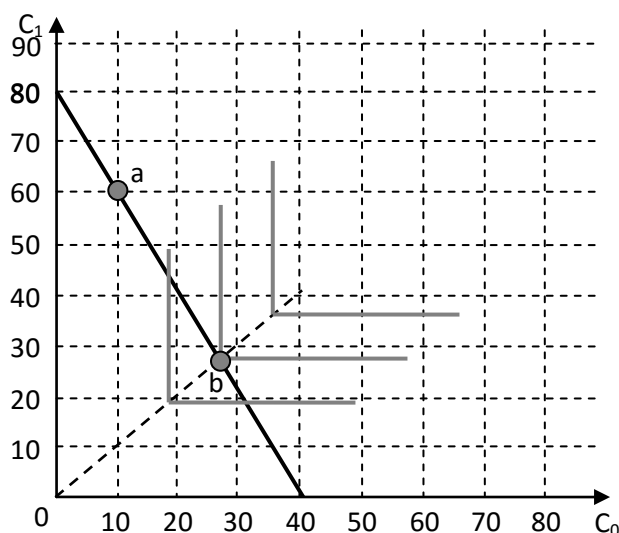
Answer all the questions in 10 minutes.

1. Somchai is a manager in a small startup firm. His income today is relatively small ($Y_0 = 10$) but he expects to become very rich in the future period ($Y_1 = 60$).

- (4 points) Depicts Somchai's budget line assuming that he can borrow and save at the interest rate $r = 100\%$.
- (6 points) Suppose Somchai's preferences can be represented by the function

$$U = \min(C_0, C_1).$$

Specify Somchai's optimal consumption plan and explain your answer.



a) We start from the initial endowment point a. With interest rate of 100%, the maximum present consumption is $10 + 60/(1+1) = 40$. The maximum future consumption is $60 + (1+1)10 = 80$. Hence the budget line is as in the picture.

b) The function $\min(C_0, C_1)$ indicates the case of perfect complement. If we increase consumption in one period, without increasing consumption in the other, consumer's utility does not increase. This makes the indifference curves to be as shown in the picture. The optimal point of the consumer is at point b, where budget line cuts with 45-degree line.

(Note that we can calculate for coordinate of point b. As we know that at b, $C_0 = C_1$. We can calculate for x such that

$$10 + 60/(1+1) = x + x/(1+1),$$

which gives $x = 80/3$ or 26.67)